Prince Edward Island Chronic Obstructive Pulmonary Disease (COPD) Trends

2001-2011

Prince Edward Island
CANADA
Health and Wellness

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2001-2011

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Key Messages

In 2001, 4,377 Islanders were living with COPD. By 2011, that number increased to 7,996. The proportion of Islanders who have been diagnosed with COPD (prevalence) rose from 5.3% in 2000 to 7.6% in 2011, an increase of 43% in the last ten years. In 2009, the prevalence of COPD in Prince Edward Island (PEI) (7.1%) was lower than the Canadian prevalence of 8.4%.

The number of newly diagnosed cases of COPD (incidence) dropped from a total of 682 newly diagnosed cases in 2001, to 596 new cases in 2007 (from 9.1 new cases per 1,000 Islanders to 7.2 per 1,000). In 2008, there was a significant jump up to 846 new cases diagnosed in PEI (9.9 new cases per 1,000 Islanders). This may be due to an increased capacity to diagnose the disease in PEI that year. In 2011, approximately 11 new cases of COPD were diagnosed among every 1,000 Islanders.

The prevalence of COPD has consistently been higher in men compared to women over the last ten years. However, the prevalence of COPD in women continues to increase at a slightly faster rate than men.

The prevalence of COPD increases with age. Prevalence is higher in females aged 35-59; however, after 60 years of age, COPD is more common in males. By 85 years and older, one in four Islanders is living with COPD, including 33% of men and 22% of women.

Cigarette smoking is the underlying cause in 80% to 90% of COPD cases. Exposure to environmental tobacco smoke (ETS) also plays a role. There has been a reduction in smoking on PEI since the mid 1990's. The PEI smoking rate has dropped from a high of 28% in 1999 down to 18% in 2011-12. Generally, the proportion of Islanders who report being exposed to ETS at home, in public places, and in cars has been decreasing over time; however, increases were seen between 2009-10 and 2011-12 in all areas, including a significant increase in exposure to ETS in public places. This recent trend should continue to be monitored in the future.

In the last ten years, the all cause mortality rate has been higher in Islanders with COPD compared to Islanders without COPD. In 2011, the death rate was 2.8 times higher among those living with COPD on PEI compared to those without the disease.

People with COPD are using health care services at a much higher rate than those without COPD. In 2011, Islanders with COPD had twice as many visits to family physicians and specialists for all causes, and spent three times as many days in-hospital compared to those without COPD.

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Introduction

Chronic Obstructive Pulmonary Disease or COPD is a term for multiple chronic respiratory diseases that include chronic bronchitis and emphysema. Most people with COPD have both conditions, resulting in a chronic cough with mucus from the chronic bronchitis, and progressive destruction of the lungs with shortness of breath from the emphysema.[1,2] Symptoms of COPD do not usually begin until after 55 years of age, but the damage to the lungs may begin many years earlier. The earlier the disease is diagnosed, the better improvements will be seen by risk factor reduction and treatments.

While COPD is a chronic disease, with the proper management, the impact of the disease can be reduced. Flare-ups occur when COPD symptoms such as shortness of breath, cough or spitting up mucus get worse or new symptoms develop. Flare-ups are the most common cause of disability and/or hospitalization of COPD patients. They are commonly caused by lung infections. Knowing how to prevent flare-ups of COPD is critical in the management of the disease.

The purpose of this document is to provide a picture of COPD in Prince Edward Island (PEI) so that policymakers, researchers, health practitioners and the general public can make informed public and personal health decisions.

Methods Used

Information for this report is based on the Canadian Chronic Disease Surveillance System (CCDSS)[3], coordinated by the Public Health Agency of Canada (PHAC). This surveillance system links the PEI health insurance registry database with physician billing and hospitalization data. For an Islander to be considered a COPD case within this surveillance system, a person would have to be 35 years old or older and would have had at least one hospitalization or physician visit with a diagnosis of COPD.

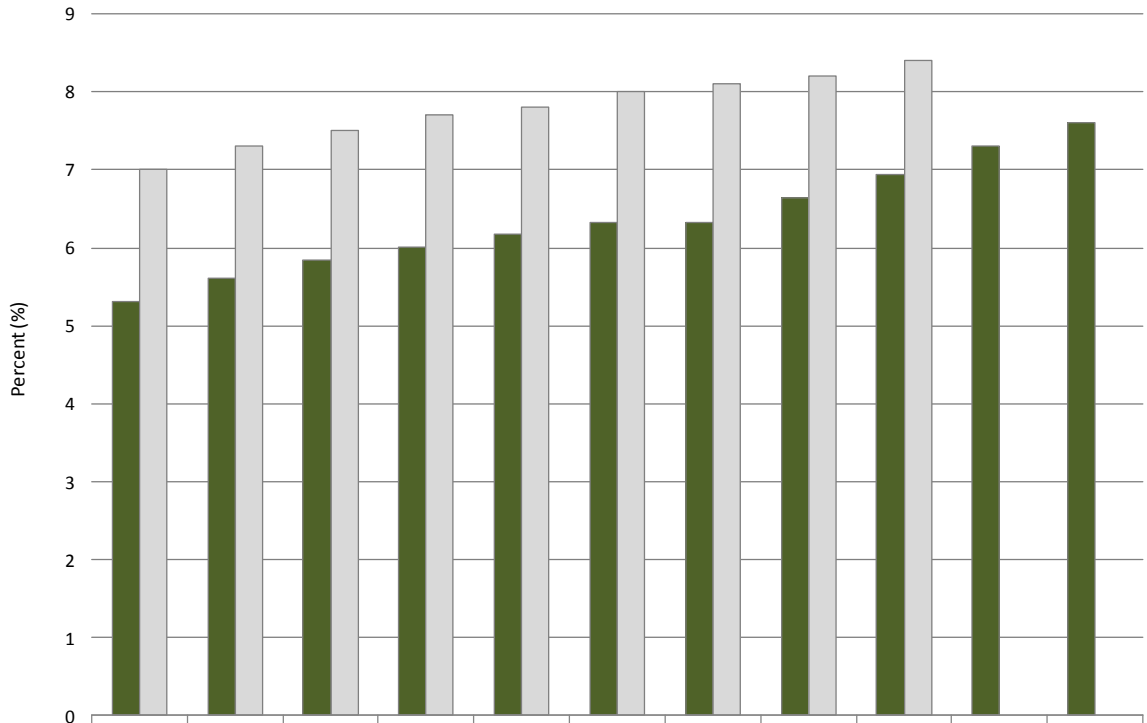
Incidence rate refers to the proportion of newly diagnosed people among all people that previously did not have COPD. Prevalence rate refers to the proportion of all people who have been diagnosed with COPD in their lifetime in the population. Prevalence data for other provinces and territories was available from the PHAC through the Chronic Disease Infobase.[4] These numbers were compared with PEI rates to show any differences. Prevalence and incidence rates for all of Canada were also obtained from this same source. The most recent data available for Canada and other provinces and territories was for 2009. PEI prevalence and incidence rates from the Infobase may differ slightly from the more current rates presented in this document, as provincial databases are continually updated to the most accurate information available at the time. Age standardized rates were used to account for differences in age distributions from place to place and time to time. They are commonly used to compare the rates of disease in PEI to the rates in other provinces or all of Canada.

Data on risk factors for COPD including smoking and exposure to environmental tobacco smoke are results of the Canadian Community Health Survey (CCHS) that have been previously published in the Chief Public Health Officer's Report and Health Trends 2014.[5]

People Living with COPD

In 2001, 4,377 Islanders aged 35 years and older were living with COPD. By 2011, that number increased to 7,996. The proportion of Islanders who have been diagnosed with COPD (prevalence) rose from 5.3% in 2001 to 7.6% in 2011, an increase of 43% in the last ten years (Figure 1). The prevalence of COPD in Islanders has consistently been lower than the prevalence of Canada.

Figure 1. COPD Prevalence, Aged 35+, PEI and Canada*, 2001-2011

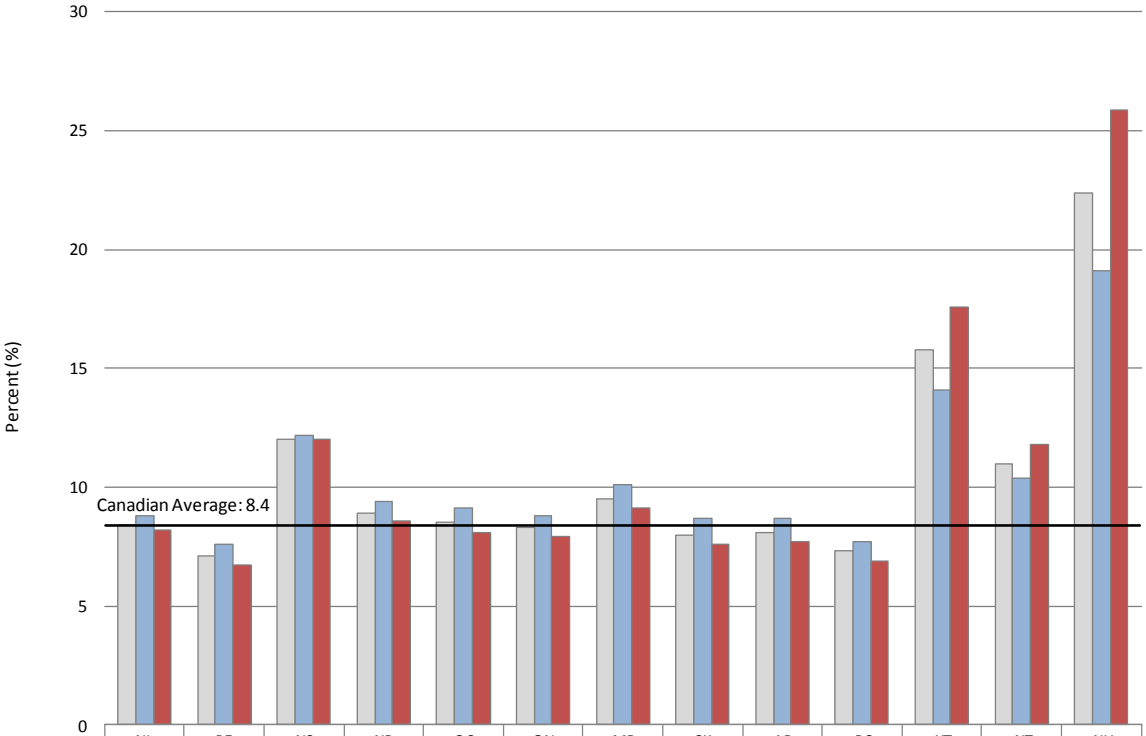


	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
PEI	5.3	5.6	5.8	6.0	6.2	6.3	6.3	6.6	6.9	7.3	7.6
Canada	7.0	7.3	7.5	7.7	7.8	8.0	8.1	8.2	8.4		

Age standardized
*Data for Canada only obtained from the Chronic Disease Infobase.[4] Data were unavailable for 2010 and 2011.

The prevalence of COPD in PEI was compared with other provinces and territories and with the overall prevalence of COPD in Canada (Figure 2). After adjusting for differences in age distributions between provinces and territories, in 2009, the prevalence of diagnosed COPD in PEI (7.1%) was lower than the Canadian average (8.4%).

Figure 2. COPD Prevalence by Province*, Aged 35+, 2009

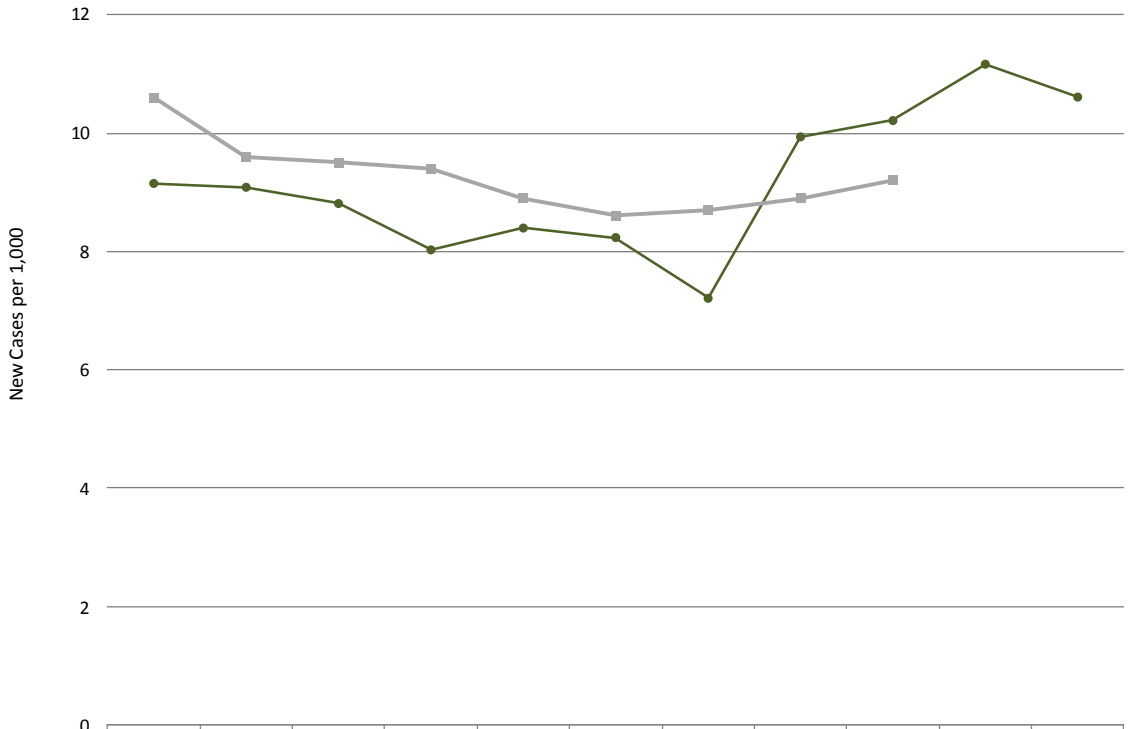


	NL	PE	NS	NB	QC	ON	MB	SK	AB	BC	YT	NT	NU
Both Sexes	8.4	7.1	12.0	8.9	8.5	8.3	9.5	8.0	8.1	7.3	15.8	11.0	22.4
Male	8.8	7.6	12.2	9.4	9.1	8.8	10.1	8.7	8.7	7.7	14.1	10.4	19.1
Female	8.2	6.7	12.0	8.6	8.1	7.9	9.1	7.6	7.7	6.9	17.6	11.8	25.9

Age standardized
*Data for all provinces including PEI was obtained from the Chronic Disease Infobase.[4]

The number of newly diagnosed cases of COPD (incidence) has dropped from a total of 682 newly diagnosed cases in 2001, to 596 new cases in 2007 (from 9.1 new cases per 1,000 Islanders to 7.2 per 1,000). During this time, the incidence of COPD in PEI was lower than in the rest of Canada (Figure 3). In 2008, there was a significant increase to 846 new cases diagnosed in PEI (9.9 new cases per 1,000 Islanders), which was higher than the Canadian rate. Reasons for this sharp increase in cases diagnosed are likely multifaceted. In September 2007, the Canadian Thoracic Society published updates on the recommendations for management of COPD.[6] Two new physicians with respiratory medicine subspecialties were recruited to work in PEI during that period. In addition, there were pharmaceutical companies offering spirometry testing at pharmacy locations. These are just a few of the possible reasons for the rapid increase in the number of diagnoses from 2007 to 2008. The incidence has continued to increase slightly since 2008.

Figure 3. COPD Incidence, Aged 35+, PEI and Canada*, 2001-2011

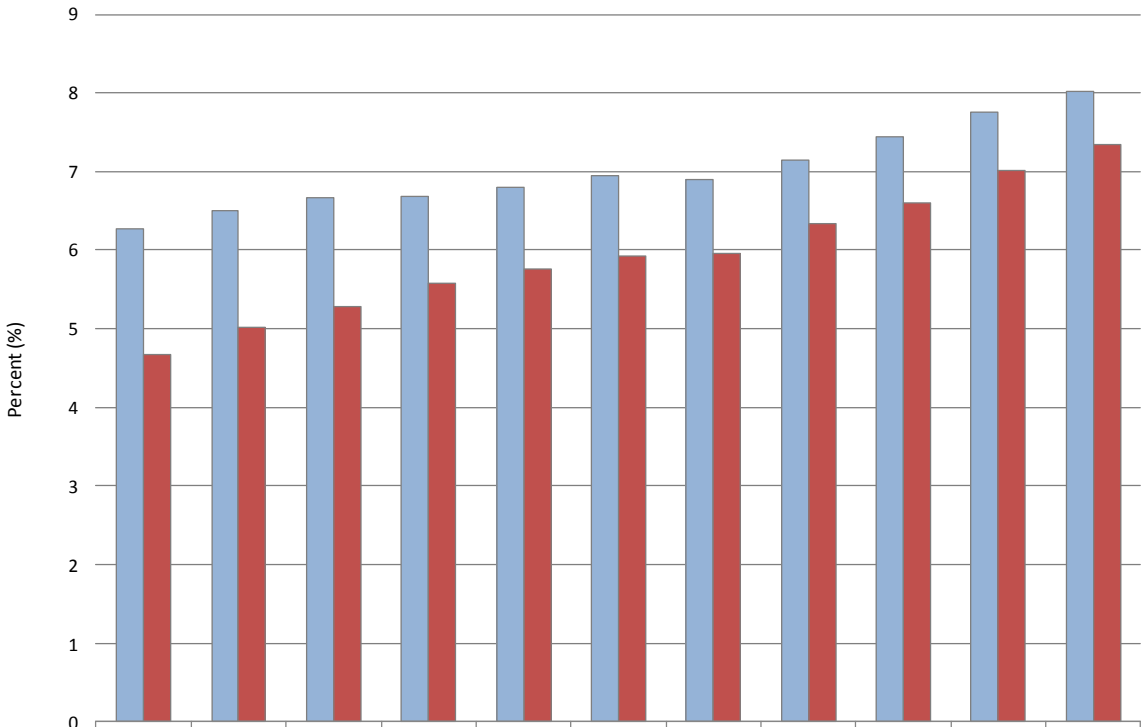


	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
PEI	9.1	9.1	8.8	8.0	8.4	8.2	7.2	9.9	10.2	11.2	10.6
Canada	10.6	9.6	9.5	9.4	8.9	8.6	8.7	8.9	9.2		

Age Standardized
*Data for Canada only obtained from the Chronic Disease Infobase.[4] Data were unavailable for 2010 and 2011.

The proportion of PEI men living with COPD has consistently been higher than the proportion of PEI women living with COPD (Figure 4). The prevalence in women continues to increase at a slightly faster rate than men narrowing the difference between men and women.

Figure 4. COPD Prevalence by Sex, Aged 35+, PEI, 2001-2011

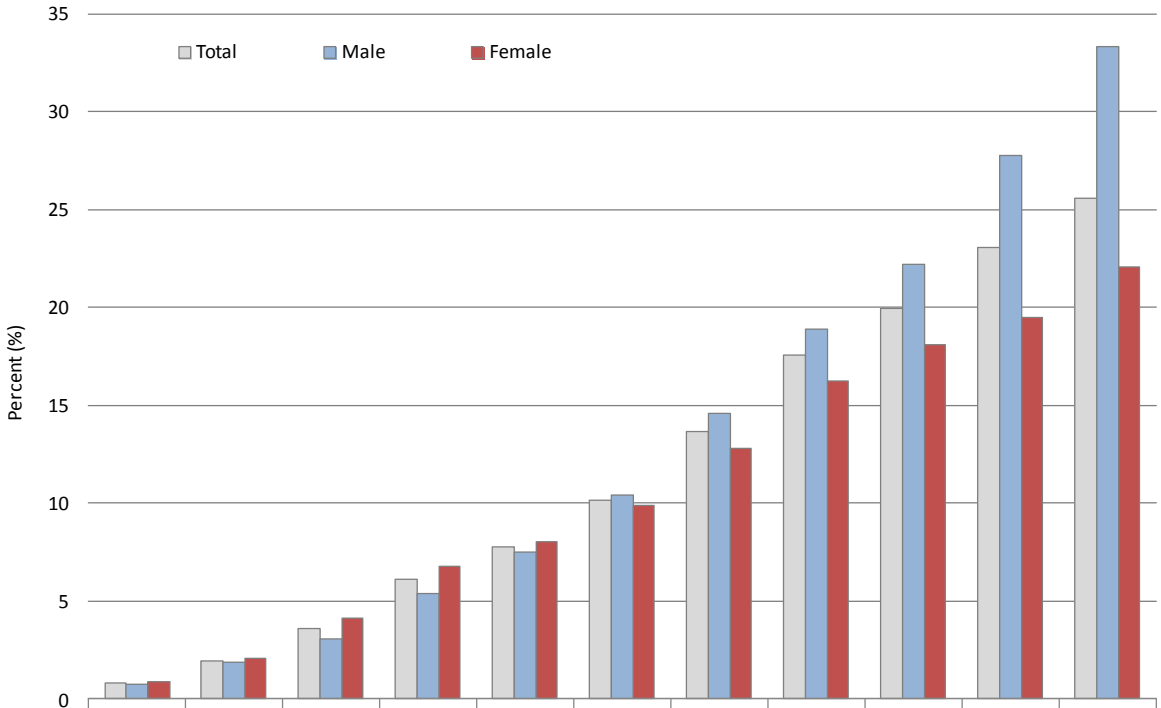


	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Male	6.3	6.5	6.7	6.7	6.8	6.9	6.9	7.1	7.4	7.8	8.0
Female	4.7	5.0	5.3	5.6	5.8	5.9	6.0	6.3	6.6	7.0	7.3

Age Standardized

The prevalence of COPD increases with age. Prevalence is higher in females than in males aged 35 to 59; however, after 60 years of age, this pattern changes with the prevalence of COPD becoming increasingly greater in males compared with females as they age (Figure 5). In 2011, one in every four islanders over the age of 85, including 33% of men and 22% of women, were living with COPD.

Figure 5. Age Specific COPD Prevalence by Sex, Aged 35+, PEI, 2011



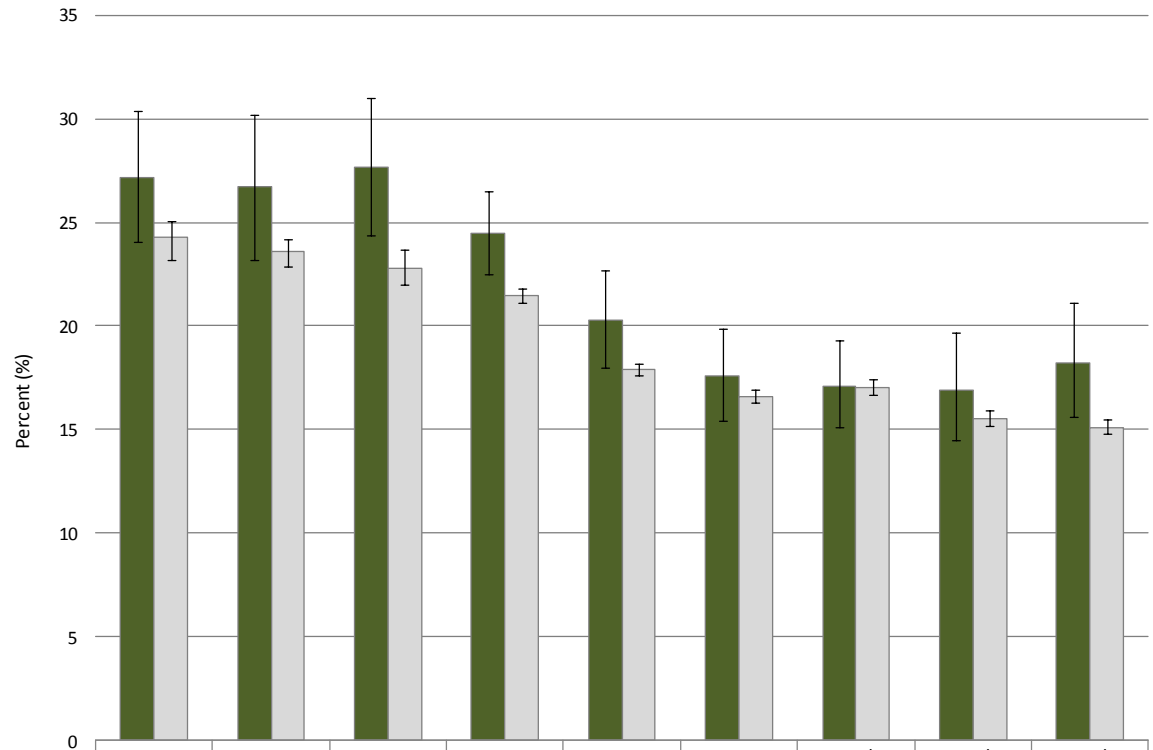
	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
Total	0.8	2.0	3.6	6.1	7.8	10.1	13.7	17.6	20.0	23.1	25.5
Male	0.8	1.9	3.1	5.4	7.5	10.4	14.6	18.9	22.2	27.7	33.3
Female	0.8	2.1	4.1	6.8	8.0	9.9	12.8	16.3	18.1	19.5	22.1

Risk Factors for COPD

There are several risk factors that contribute to the development of COPD. Cigarette smoking is the underlying cause in 80% to 90% of COPD cases.[1] Exposure to environmental tobacco smoke (ETS), often referred to as second-hand smoke, also plays a role. Other important risk factors including exposure to occupational dusts such as grain dust and fumes, house dust, and outdoor air pollution may increase the severity of COPD. Predisposition to COPD may be caused by repeated respiratory tract infections and exposure to second-hand smoke in children. There is also a genetic deficiency of a lung protecting substance (alpha-1-antitrypsin), which predisposes people to COPD.[1]

Data from the National Population Health Survey and the Canadian Community Health Survey[5] show an overall decrease in smoking rates over time in Canada and in PEI (Figure 6). In 2011-12, 18.2% of Islanders smoked, which was significantly higher than the Canadian rate of 15.1%. The PEI smoking rate has dropped from a high of 27.7% in 1999 down to its current rate.

Figure 6. Self Reported Daily Smoking, Aged 12+, PEI and Canada

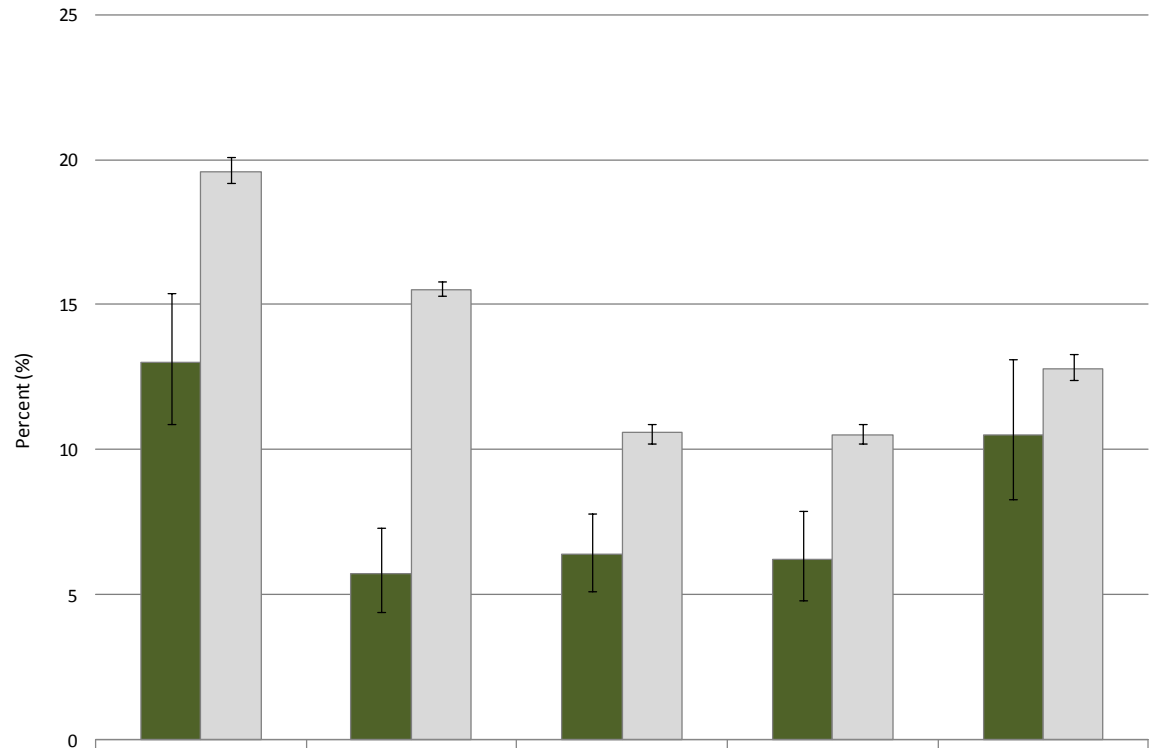


	1995	1997	1999	2001	2003	2005	2007/08	2009/10	2011/12
PEI	27.2	26.7	27.7	24.5	20.3	17.6	17.1	16.9	18.2
Canada	24.3	23.6	22.8	21.5	17.9	16.6	17.0	15.5	15.1

In 2003, PEI introduced the Smoke-free Places Act banning smoking in all public spaces.[7] This Act has helped reduce the amount of ETS exposure in public spaces. Although PEI was the first province to institute comprehensive, province-wide, anti-smoking legislation in Canada, the most recent rates indicate a potential increasing trend in exposure.

The proportion of Islanders exposed to ETS in public places has decreased from 13.0% in 2003 to 6.2% in 2009-2010, and then increased to 10.5% in 2011-12 (Figure 7). The PEI rate has been significantly lower than the Canadian rate between 2003 and 2010, but was no longer significantly lower than the rest of Canada in 2011-12.

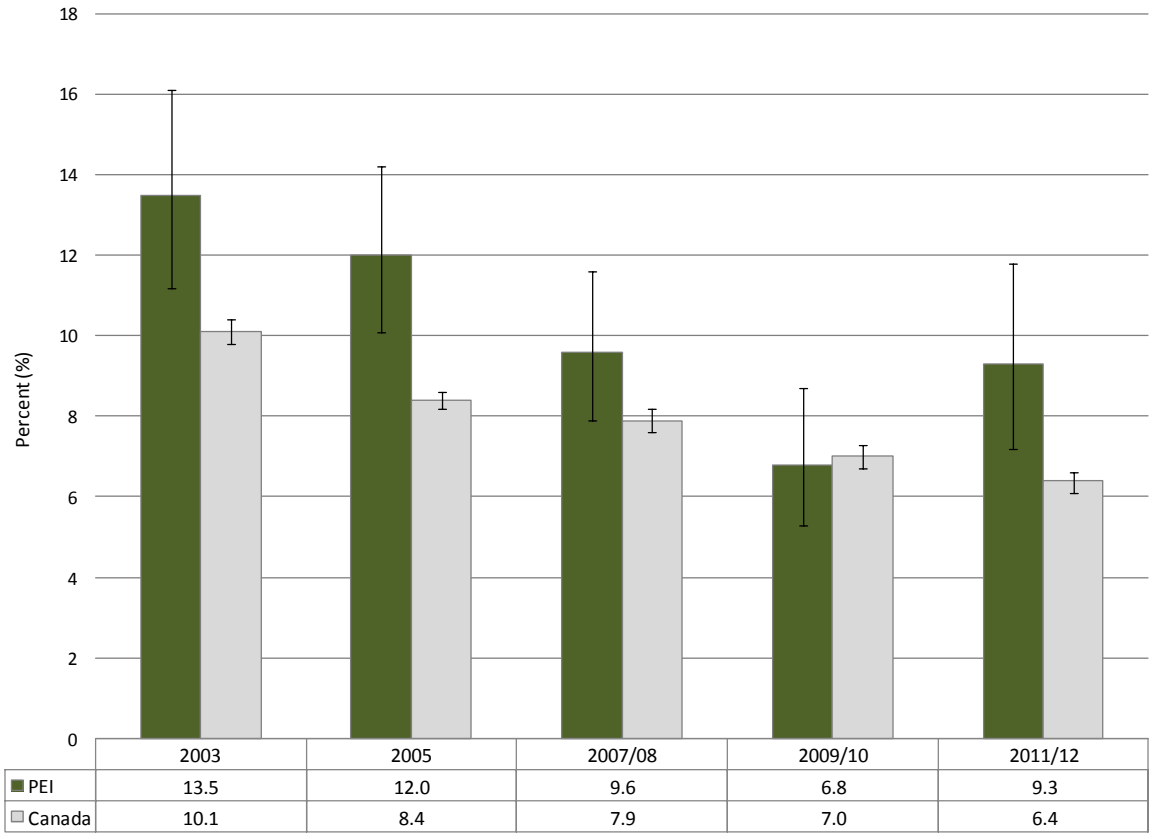
Figure 7. Self Reported Exposure to ETS in a Public Place, Aged 12+, PEI and Canada



	2003	2005	2007/08	2009/10	2011/12
PEI	13.0	5.7	6.4	6.2	10.5
Canada	19.6	15.5	10.6	10.5	12.8

The proportion of Islanders reporting exposure to ETS in cars decreased from 13.5% in 2003 to 6.8% in 2009-2010 (Figure 8). However, as seen with exposure to tobacco smoke in public places, there was an increase in 2011-12. In 2011-12, the PEI rate was significantly higher than the Canadian rate of 6.4%.

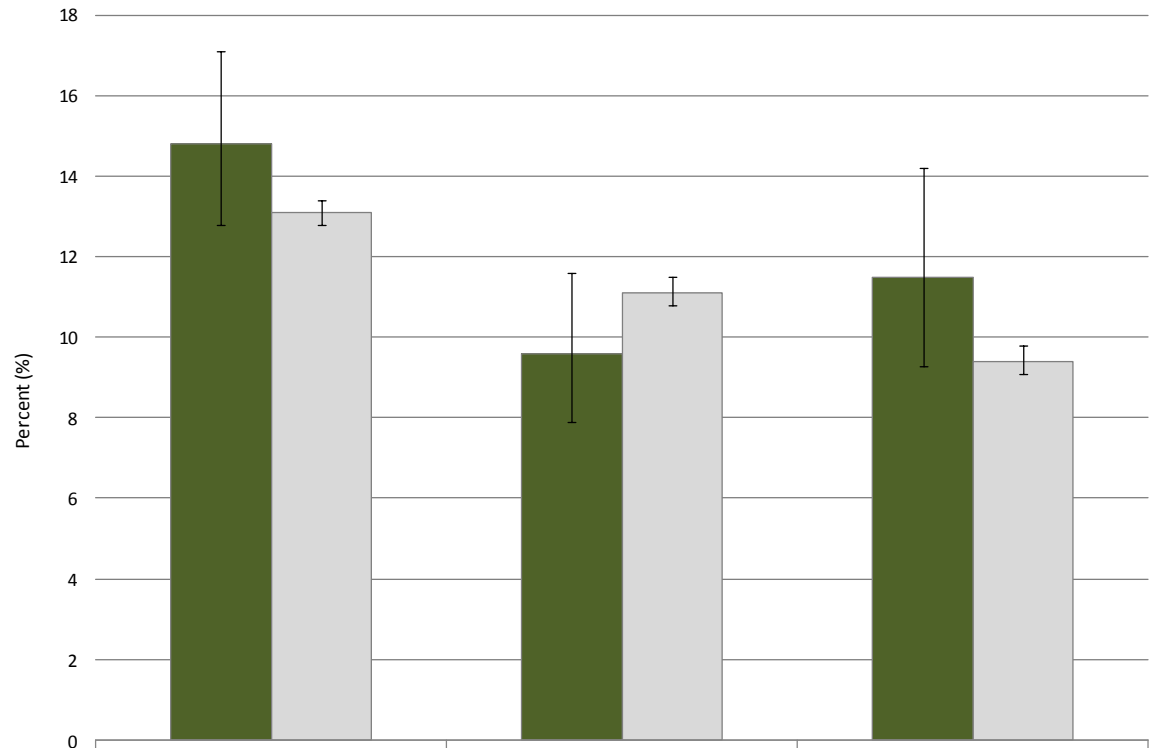
Figure 8. Self Reported Exposure to ETS in a Car, Aged 12+, PEI and Canada



	2003	2005	2007/08	2009/10	2011/12
PEI	13.5	12.0	9.6	6.8	9.3
Canada	10.1	8.4	7.9	7.0	6.4

Although not significantly different, the rate of exposure to ETS at home in PEI is higher than in Canada in the most recent CCHS survey (Figure 9).

Figure 9. Self Reported Exposure to ETS at Home, Aged 12+, PEI and Canada

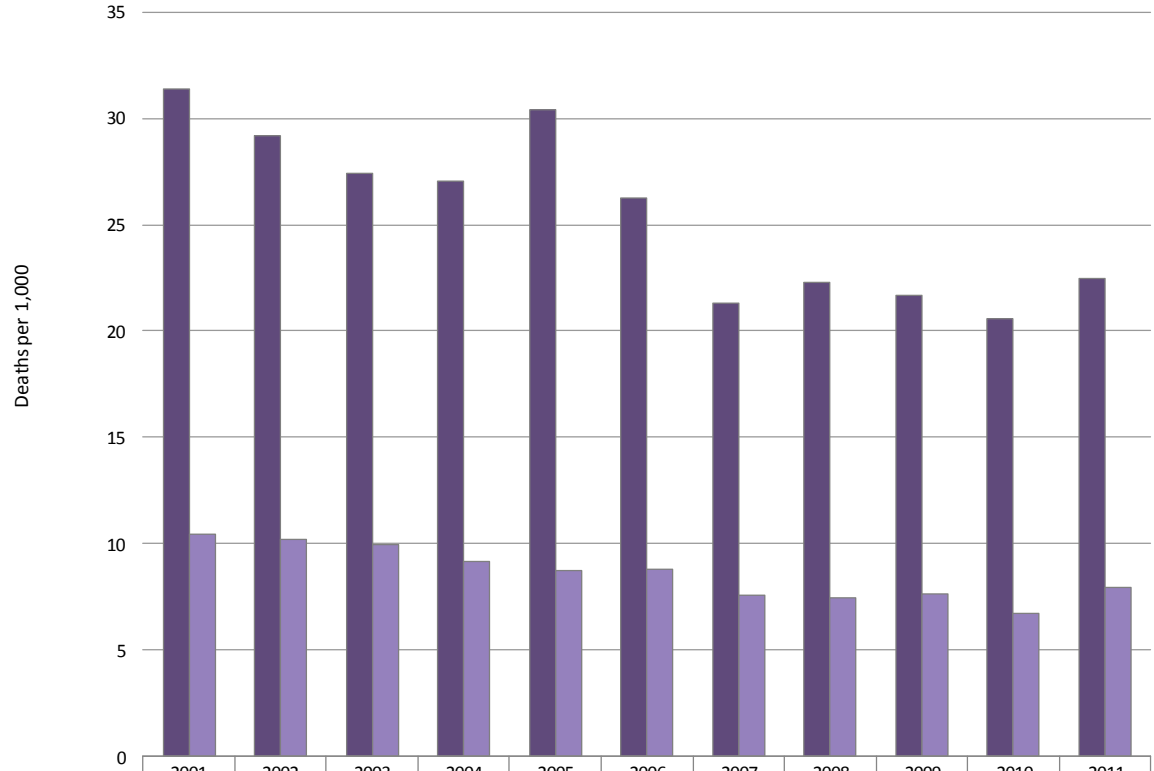


	2007/08	2009/10	2011/12
PEI	14.8	9.6	11.5
Canada	13.1	11.1	9.4

Deaths among People with Diagnosed COPD (Mortality)

In the last ten years, death rates from all causes in Islanders with COPD have been higher than in those without COPD (Figure 10). In 2011, the mortality rate of Islanders with COPD was 2.8 times higher than in Islanders without COPD. Chronic lower respiratory disease was the 5th most common cause of death in PEI in 2011.[8] Most deaths due to chronic lower respiratory disease are due to COPD.

Figure 10. All Cause Death Rate for People with and without COPD, Aged 35+, PEI, 2001-2011



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
With COPD	31.4	29.2	27.4	27.1	30.4	26.3	21.3	22.3	21.7	20.6	22.5
Without COPD	10.4	10.2	9.9	9.1	8.7	8.8	7.6	7.5	7.7	6.7	7.9

Age Standardized

Multiple Morbidities among People with Diagnosed COPD

In 2011, people with COPD had an all cause death rate 2.8 times higher than those without COPD. However, some of these deaths may be due to other diseases. Because many chronic diseases can be attributed to lifestyle, people often have more than one chronic disease. The presence of these other chronic diseases can contribute to the death rate differences. For example, people identified with COPD in 2011 were 1.6 times more likely to have diabetes, and 1.3 times more likely to have hypertension, compared to those without COPD.

Health Services Utilization

In 2011, compared to those without COPD, Islanders with COPD:

- Had 1.9 times as many visits to family physicians
- Had 2.1 times as many visits to specialists for all causes
- Spent three times as many days in hospitals

Special Section: Prince Edward Island COPD Services

Health PEI, recognizing the serious and growing burden of chronic disease, has endorsed the *Stemming the Tide: Chronic Disease Prevention and Management Framework 2013-2018* based on the Expanded Chronic Care Model. Increasing support for persons with COPD is a key objective for Health PEI.

Each primary care network across PEI includes nurses certified in spirometry testing (SPIRO*trec*) and COPD patient education and management (COPD*trec*). These programs are given by the Lung Association and provide the current evidence in COPD diagnosis and management. All Islanders with suspected COPD can be referred to these primary care network registered nurse COPD educators. The nurse completes spirometry testing and all positive results are referred to the respirologist to confirm the diagnosis of COPD. The nurse educator also facilitates the development of a COPD Action Plan in consultation with the patient's primary care provider/team. The primary care network nurse provides follow up spirometry testing to assist in monitoring the progress of COPD patients. All patients who are admitted to hospital with a diagnosis of COPD are followed by a team of professionals (registered respiratory therapist, respirologist, physiotherapist, nurses, physicians, etc) according to the COPD care pathway. Referrals are made from acute care to the primary care nurse COPD educator for follow up.

Empowering persons with COPD to build skills for healthy living and effective self management strategies is a key element to preventing and managing COPD exacerbations. To further support work to date, primary care nurses and other staff across the health care system are being trained on *Supporting Realistic Behavioral Changes* as well as on the *Ottawa Model for Smoking Cessation*. These programs help build capacity of staff to apply evidence based approaches in promoting patient self management.

Health PEI has recently secured support through the Canadian Foundation for Healthcare Improvement to implement a new initiative (INSPIRE). The objective of the initiative is to build a coordinated integrated team around the moderate to severe COPD patient (and their caregiver(s)), ensuring they are empowered with a self management action plan to prevent and minimize the impact of exacerbations. A key component of this initiative is to discuss and determine the best approach to integrate the hospital based COPD team(s) with the primary care network COPD team(s) in order for a COPD patient to receive the best care from the best person, at the best location, and at the best time.

Conclusions

In 2011, there were just under 8,000 Islanders living with COPD. For the most part, COPD is a preventable disease. The number of new cases of COPD can be reduced and the health of these Islanders with COPD can be improved. Since smoking is the cause of approximately 90% of COPD cases, the best way to prevent or slow the progression of this disease is by not smoking. PEI has supported tobacco reduction through the *Smoke-free Places Act* and by supporting smoking cessation programs.

If you are a smoker, it is never too late to quit. Quitting will reduce the risk of COPD or slow the progression of the disease if you already have it. If you have questions about quitting, you should contact your health care provider or pharmacist. Smoker's helpline is available by phone (1-877-513-5333) or online (www.smokershelpline.ca) for help making a quit plan that is right for you. PEI also has QuitCare® for those who would benefit from an intensive cessation program.

The impact of this disease can be reduced if the disease is diagnosed early and flare-ups are prevented. Early diagnosis can lead to better outcome of the disease. A diagnosis is made by spirometry, a quick breathing test that measures the amount of air that you can move through your lungs. Currently this test can be done at the Queen Elizabeth and Prince County Hospitals and at a number of health care centres.

Knowing how to prevent flare-ups of COPD is critical in the management of the disease. The PHAC recommends following these simple rules to reduce the risk of flare-ups[1]:

- Take good care of yourself.
- Take all of the medications prescribed by your doctor.
- Talk to your doctor about creating an action plan to deal with a potential flare-up.
- Get a flu shot every year.
- Avoid triggers such as air pollution, cigarette smoke and breathing very cold or very humid air.

The Department of Health and Wellness, along with community partners, continue to apply the best available evidence to support and promote self management and track and report health outcomes. Understanding the changes in the number of patients diagnosed with COPD and living with COPD is essential for policymakers, researchers, health practitioners and the general public to make informed public and personal health decisions. Reduction and avoidance of risk factors to reduce the development of COPD is critical to reducing the incidence of this disease. Following the recommendations is the key to management for Islanders living with COPD.

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